

**Notice of Allowability**

Application No.

10/776,638

Applicant(s)

KITAMURA, MITSURU

Examiner

Leo Boutsikaris

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 1/5/06.
2. ☒ The allowed claim(s) is/are 9-22.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Chid Iyer (Reg. No. 43,355) on 1/19/2006.

The application has been amended as follows:

In claims 9, 11, 13, 17, 19, 21, the term " $TWLci(\theta_{XY}, \theta_{YZ})$ " is deleted.

Claim 15 is rewritten as follows:

15. A computer-generated hologram, the hologram separating a viewing side and a side opposite to the viewing side, the hologram comprising:

a plurality of cells,

the hologram having information recorded therein, said information operable to recreate a stereoscopic image of an object,

the hologram being operable to receive reconstruction illumination light such that diffraction light is reconstructed,

the diffraction light diverging from a plurality of virtual point light sources on the viewing side of the hologram;

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a luminance  $[TWLci(\theta_{xy}, \theta_{yz})]$  of the diffraction light from each of the virtual points being equal to a luminance of light from a corresponding point S on the object, the luminance being measured in the plane of the hologram,

the plurality of virtual point light sources being at a position away from the hologram plane and independently from the object.

In claim 17, line 3, "the hologram" is deleted.

The following is an examiner's statement of reasons for allowance:

Claims 9-22 are allowable over the prior art for at least the reason that even though the prior art discloses methods for creating a computer generated hologram of an object, wherein a plurality of virtual point light sources located on the object are used in the recording of the interference pattern comprising the hologram, the prior art fails to teach or reasonably suggest, regarding claims 9-10, a computer-generated hologram, wherein at least one of the plurality of cells  $P_j$  has information related to a luminance of a virtual point light source  $Q_i$  from a plurality of virtual point light sources, the luminance corresponding to a point S on the object,  $Q_i$  being at a position away from the hologram plane and independent of S, regarding claims 11-12, a computer-generated hologram, wherein the diffraction light diverges from a plurality of virtual point light sources, a luminance of the diffraction light from each virtual point corresponding to a point S on the object, the plurality of virtual point light sources being at a position away from the hologram plane and independently from the object, regarding claims 13-14, a computer-generated hologram, wherein the diffraction light converges on a plurality of virtual condensing points, a luminance from each virtual point corresponding to a point S on the object, the plurality

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of virtual condensing points being at a position away from the hologram plane and independently from the object, regarding claims 15-16, a computer-generated hologram, wherein the diffraction light diverges from a plurality of virtual point light sources, a luminance of the diffraction light from each virtual point corresponding to a point S on the object, the plurality of virtual point light sources being at a position away from the hologram plane and independently from the object, regarding claims 17-18, a method of generating a hologram capable of recreating a stereoscopic image of an object, the method comprising designating a plurality of virtual point light sources such that one of said plurality of virtual point light sources  $Q_i$  corresponds to a point S on the object, the plurality of virtual point light sources being at a position away from the hologram plane and independently from the object, regarding claims 19-20, a method of generating a hologram capable of recreating a stereoscopic image of an object, the method comprising designating a plurality of virtual point light sources, producing diffraction light diverging from the plurality of virtual point light sources, the plurality of virtual point light sources being at a position away from the hologram plane and independently from the object, and regarding claims 21-22, a method of generating a hologram capable of recreating a stereoscopic image of an object, the method comprising designating a plurality of condensing points of light, producing diffraction light converging on the plurality of condensing points, the virtual condensing points being at a position away from the hologram plane and independently from the object, as set forth by the claimed combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue


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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Leo Boutsikaris whose telephone number is 571-272-2308.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leo Boutsikaris, Ph.D., J.D.  
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January 20, 2006

  
**LEONIDAS BOUTSIKARIS**  
**PRIMARY EXAMINER**